Harmonization of Sensor Standards in Semantic Wikis: Sensor Standards Harmonization Working Group Meeting

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Semantic Interoperability Community of Practice (SICoP)
Best Practices Committee (BPC), Federal CIO Council
June 26, 2007

What's New

- 1. DCGS MASINT Harmonization Working Group Meeting, March 13-15, 2007
- 2. CBRN Data Model as an Ontology in a Semantic Wiki, March 28, 2007
- 3. OGC Sensor Specifications, May 17, 2007
- 4. 2007 Semantic Technology Conference Presentations (selected), May 20-24, 2007
- 5. DRM 3.0 and Web 3.0, June 18-19, 2007
- 6. Modular Approach to SSHWG Ontology, June 26, 2007

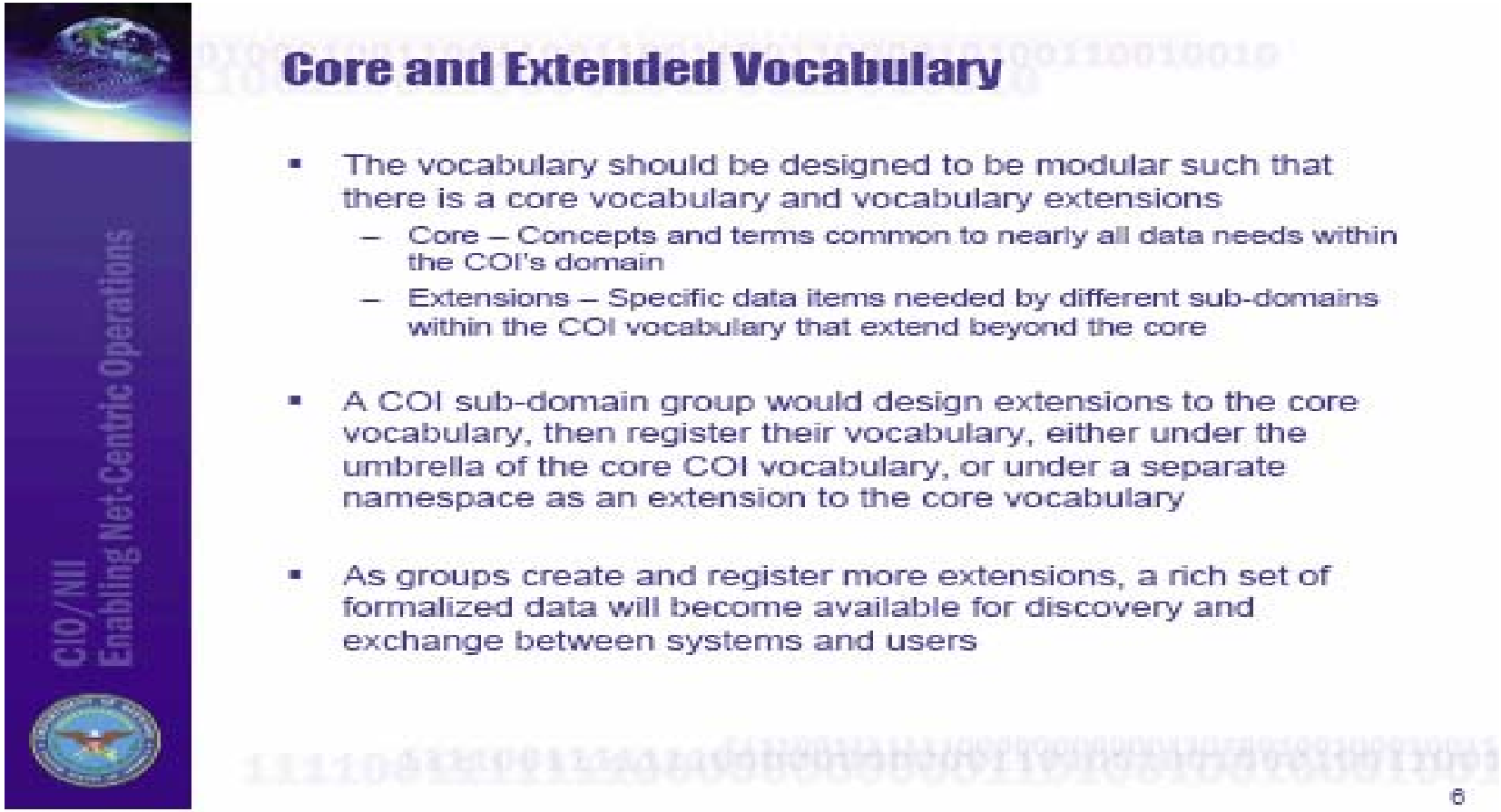
1. DCGS MASINT Harmonization Working Group Meeting, March 13-15, 2007

- 1.1 Draft Agenda:
  - Presentations and Results to be Posted?
- 1.2 DCGS Discovery Metadata Management, Electronic Systems Center, (US Air Force):
  - It is difficult to develop a schedule, scope an effort, and measure progress when we are unable to quantify how much data we have that we need to share.
- 1.3 Status Briefing on “EO” Standard Activities at NGA, Jack Huntley, NGA/NCGIS, and Bill Craig, SeiCorp, Inc.:
  - Standards are necessary for interoperability; but, don’t guarantee operational success -- yet!
- 1.4 Persistent Universal Layered Sensor Exploitation Network (PULSENetTM), Tom Ingold, Intelligence Group (TASC), Northrop Grumman Information Technology:
  - Integrating multiple sensor inputs with different message types into an architecture by which sensor data can be discovered, captured, fused and provided as actionable intelligence via web services.
- 1.5 Overview of DNDO Data Exchange & Modeling Efforts, Domestic Nuclear Detection Office (DNDO):
  - Complete DRM for EDMO and submit and Continue to review data model for compatibility with Global Justice XML Data Model (GJXDM) and DOD CBRN Data Model

1.1 Draft Agenda

- March 13, 2007:
  - DCGS MASINT Portal Discovery Service
    - 1.1 DCGS Discovery Metadata Management
  - Mapping Standards to Discovery
    - 1.2 DCGS Discovery Metadata Management
- March 14, 2007:
  - Mapping Standards to Discovery
  - Mapping Sensors to Discovery
- March 15, 2007:
  - Mapping Sensors to Discovery
    - 1.3 Persistent Universal Layered Sensor Exploitation Network (PULSENetTM)
- March 16, 2007:
  - Optional Day - Mapping Sensors to Discovery
    - 1.4 Overview of DNDO Data Exchange & Modeling Efforts, Domestic Nuclear Detection Office (DNDO)?

1.2 DCGS Discovery Metadata Management



Source: OSD NII briefing: Approach for Defining and Validating a COI Vocabulary

1.3 Status Briefing on “EO” Standard Activities at NGA

- Purpose:
  - Provide status and way ahead on the following standard activities:
    - Roadmap For Standards Way Ahead
    - Sensor Standards Acquisition Guide (S^2AG)
    - Sensor Model Metadata Profile Formulations
    - Schedule
  - Bottom Line:
    - Standards provide hundreds of millions of dollars of potential savings and cost avoidance while increasing operational capability and interoperability:
      - Standards Cost Saving Analysis Briefing presented by Don Self, Chief, Airborne Integration, NGA, to Navy/Air Force/Army Cross Service Initiatives Panel of 3-Stars on September 07, 2006.

1.4 Persistent Universal Layered Sensor Exploitation Network (PULSENetTM)

- Sensor Web Desires:
  - Moving from stove-piped sensor fields to a global sensor web creates the need to:
    - Quickly discover sensors (secure or public) that can meet a user's needs – location, observables, quality, ability to task.
    - Obtain sensor descriptions in a standard encoding that is understandable by a user and his or her software.
    - Readily access sensor observations in a common manner, and in a form specific to a user's needs (current and historical).
    - Task sensors, when possible, to meet a user's specific needs.
    - Subscribe to and receive alerts when a sensor measures a particular phenomenon.
- The architecture is based on SOA and the Open Geospatial Consortium's (OGC®) Sensor Web Enablement (SWE) suite of web services and encodings.

1.5 Overview of DNDO Data Exchange & Modeling Efforts

Draft Matrix (extract)

Contrasted Data Standards

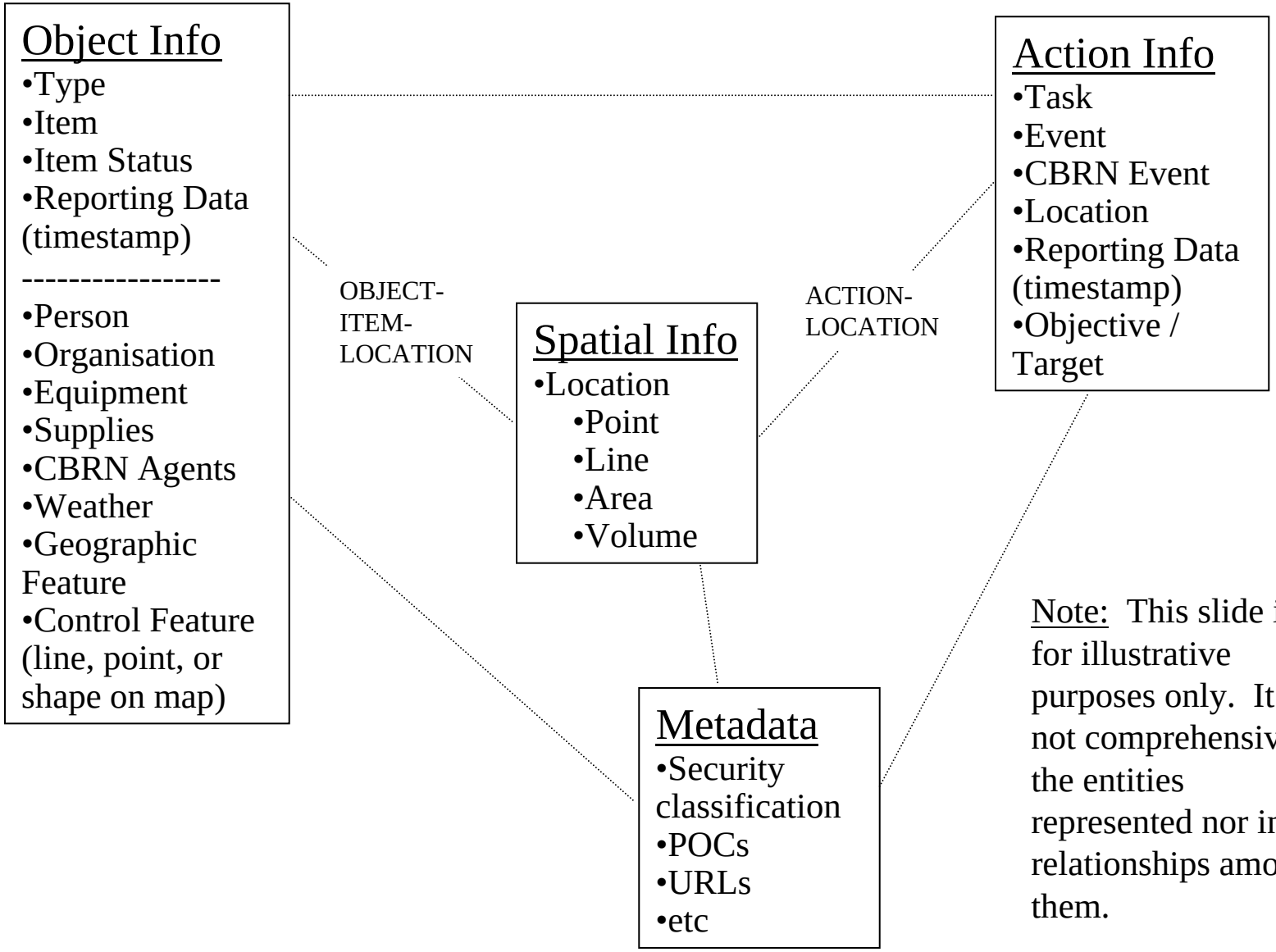
	CAP v1.1		UNWD Standard (DTRA)		EDXL Distribution Element	
Data Element	**Label**	**Format**	**Label**	**Format**	**Label**	**Format**
Mesasage File Name	alert					
Message Identifier	identifier				messageID	string
Message Headline	headline	String (target <160 char)				
Keyword					keyword	Value from discrete managed list
Sender	sender senderName	String String			senderID	String
Sender Role					senderRole	Value from managed discrete list
Message Handling Code	status	Select from: "Actual" "Exercise" "System" "Test" "Draft"			messageStatus	Select From: "Actual" "Exercise" "System" "Test"
Parent Event Identifier	incidents	group listing naming referent incident(s)	eventID	String		
Sequence Number			sequence	Numeric		

Suggested Data Elements

2. CBRN Data Model as an Ontology in a Semantic Wiki, March 28, 2007

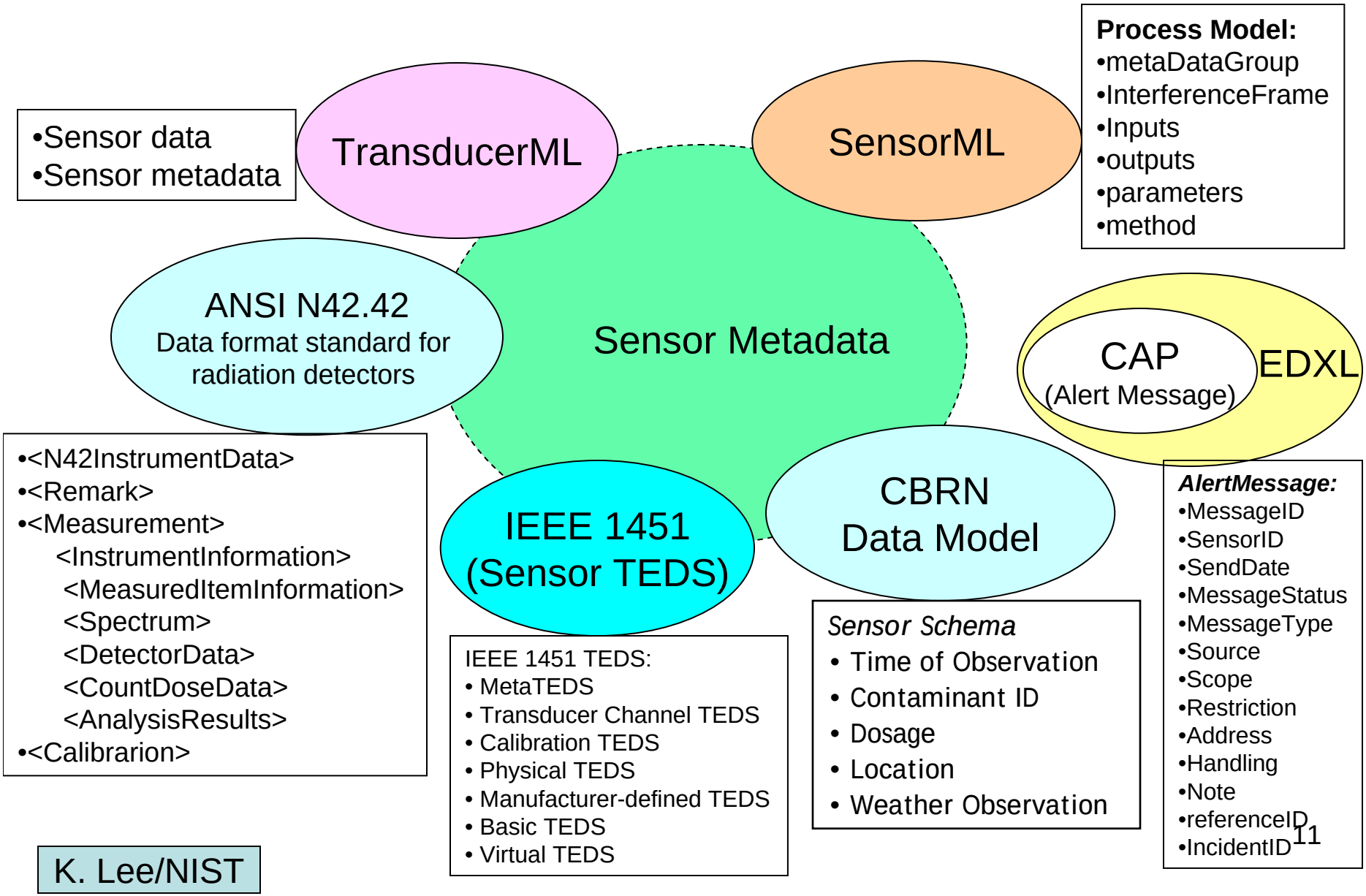
- 2.1 CBRN Data Model High-level Overview, Tom Johnson, August 2, 2006:
  - http://www.sensornet.gov/net_ready_workshop/Tom_Johnson_August_02_2006_Brief.pdf
  - http://colab.cim3.net/cgi-bin/wiki.pl?NetReadySensorsWorkshop_2006_08_0203
- 2.2 Sensor Standards Harmonization, Kang Lee, September 11, 2006:
  - See URL for 2.3 below
- 2.3 SSHWG Meeting at NIST, Brand Niemann, November 28, 2006:
  - http://colab.cim3.net/file/work/SICoP/2006-11-28/SICoPNIST11282006.ppt
  - Demonstration of Knowledgebase
- 2.4 SSHWG Meeting at NIST, Brand Niemann, February 28, 2007
  - http://colab.cim3.net/file/work/SICoP/2007-02-27/SICoPSSHWG02272007.ppt
  - Demonstration of Knowledgebase
- 2.5 Demonstration of Knoodl.com Semantic Wiki, March 28, 2007:
  - http://knoodl.com

2.1 CBRN Data Model High-level Overview



Note: This slide is for illustrative purposes only. It is not comprehensive in the entities represented nor in the relationships among them.

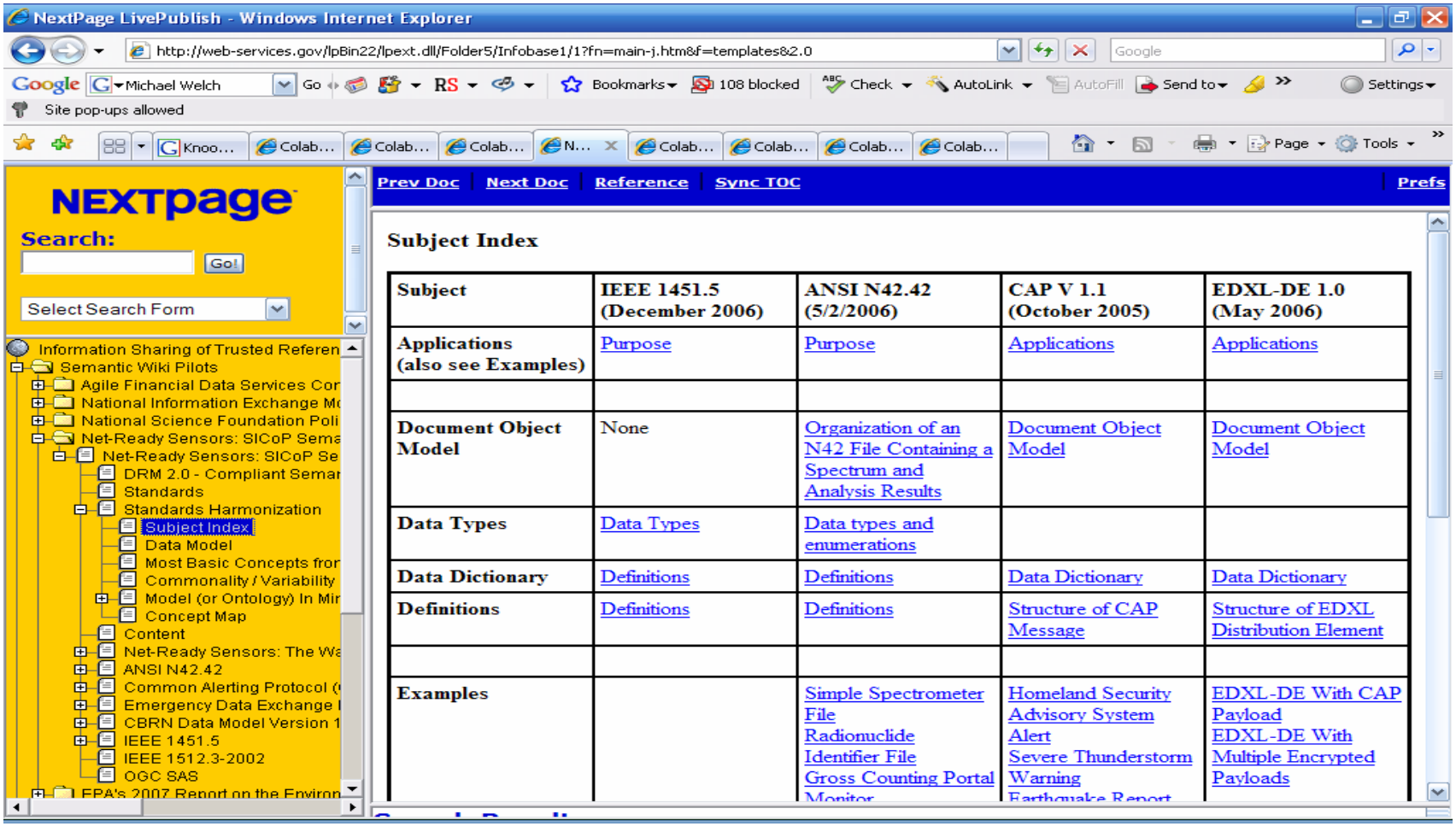
2.2 Sensor Standards Harmonization



K. Lee/NIST

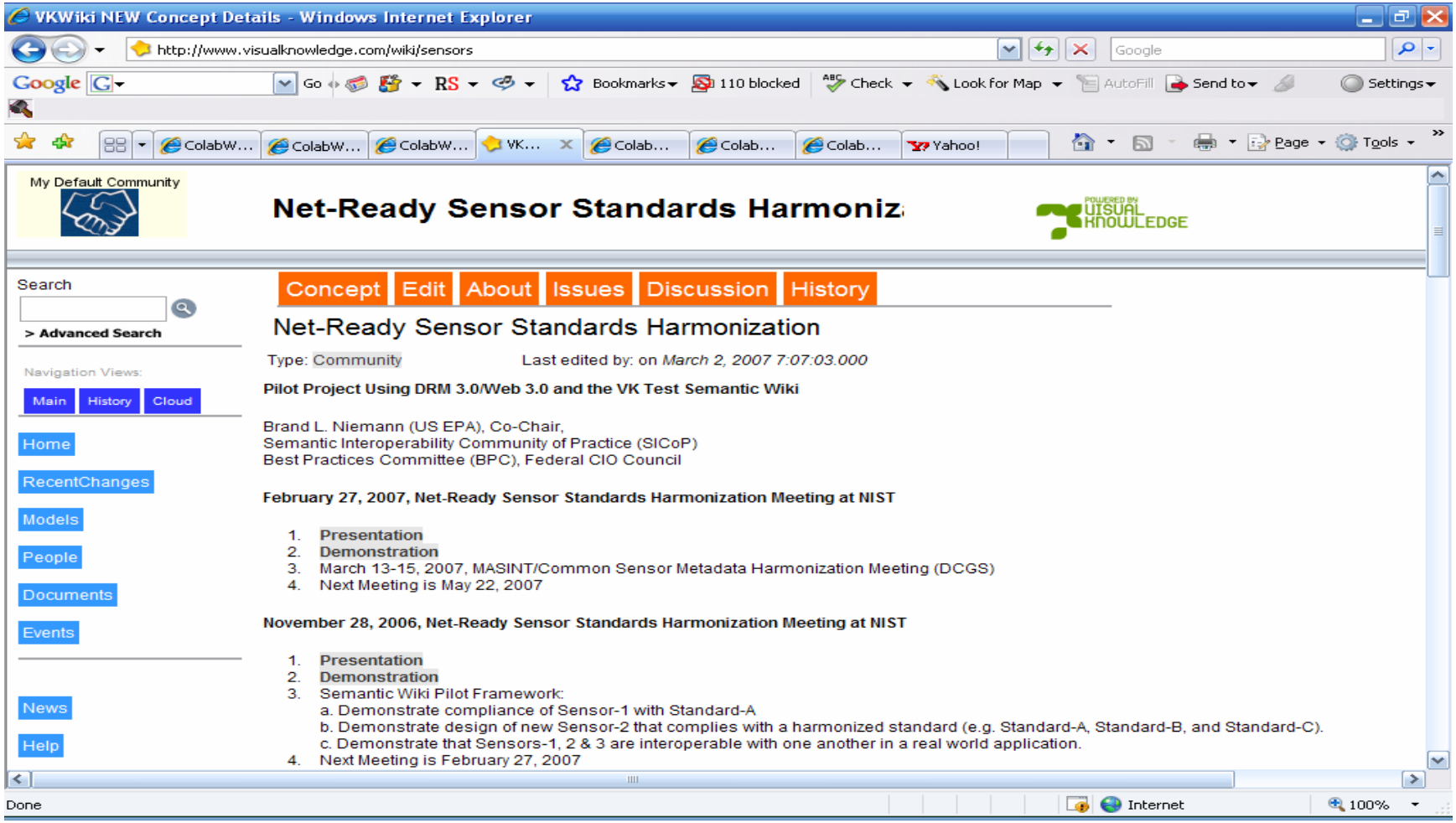
2.3 SSHWG Knowledgebase

Common Subject Index



http://web-services.gov

2.4 Semantic Wikis



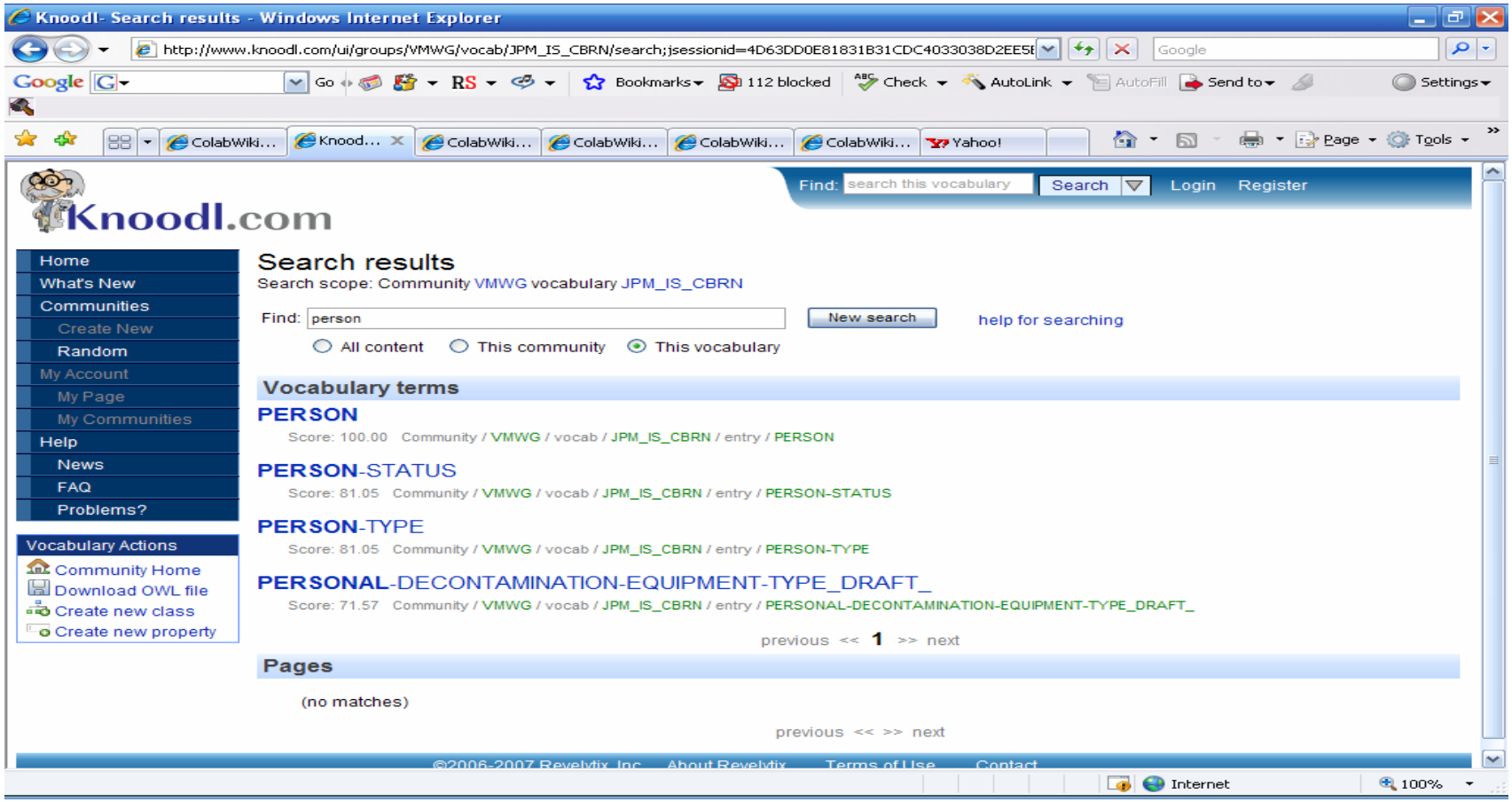
http://vkwiki.visualknowledge.com/wiki/sensors

2.5 Demonstration of Knoodl.com Semantic Wiki

- SICoP and SOA CoP Special Recognitions:
  - Outstanding Contributions to the SICoP Special Conference 2, April 25th; and
  - Best Presentation at the 3rd SOA for E-Government Conference, May 1-2nd:
    - **"Semantic Technology is the first fundamental change in Information Management since the RDBMS was developed in the early 1980's":**
      - Michael Lang, Revelytix, Co-Founder and Director, and Co-Chair, SICoP Vocabulary Management WG.
  - Demonstration at the June 18-19, 2007, W3C Workshop on eGovernment and the Web, National Academy of Sciences.

http://colab.cim3.net/file/work/SOACoP/2007_05_0102/MLang05022007.ppt

2.5 Demonstration of Knoodl.com Semantic Wiki



http://www.knoodl.com/ui/groups/VMWG/vocab/JPM_IS_CBRN

Note: Removed from public view – see explanation in next slide.

2.5 Demonstration of Knoodl.com Semantic Wiki

- We converted the CBRN Data Model spreadsheet to an ontology in one of our SICoP Semantic Wikis (Knoodl.com) for a demonstration to the SSHWG members that asked to see how we could work with it in a "Semantic Web way" because it was made available at the August 2006 Workshop in Oak Ridge and it represented a great example of a spreadsheet-to-ontology conversion. We have removed this because our intent all along was to harmonized the multiple standards and data models in support of the SSHWG so our result will not be the release of “the CBRN data model spreadsheet" but a new semantically harmonized and machine processible ontology.

3. OGC Sensor Specifications, May 17, 2007

- OGC Requests for Public Comment:
  - Sensor Model Language (SensorML)
  - Transducer markup Language (TML)
  - Sensor Planning Service (SPS)
  - Sensor Observation Service (SOS)
- OGC Best Practices Documents*:
  - Sensor Alert Service (SAS)
  - Observations and Measurements (O&M)

* Formally approved. See http://www.opengeospatial.org/projects/groups/sensorweb for short summary descriptions of each standard.

4. 2007 Semantic Technology Conference Presentations (selected), May 20-24, 2007

- 4.1 Data Modeling and OWL: Two Ways to Structure Data:
  - David Hay, Essential Strategies, Inc.
    - http://www.semantic-conference.com/2007/handouts/2-UpBW/Hay_David_2_2UpBW.pdf
- 4.2 Using Ontology-based XML Schemas for Interoperability:
  - Ralph Hodgson, TopQuadrant, Inc.:
    - http://www.semantic-conference.com/2007/handouts/2-UpBW/Hodgson_Ralph_2UpBW.pdf
- 4.3 Spectrum of Reasoning and Applications:
  - Leo Obrst, MITRE:
    - http://www.semantic-conference.com/2007/handouts/2-UpBW/TUE_200_Niemann_Brand_2UpBW.pdf
- 4.4 Semantic Wikis (multiple)

4.1 Data Modeling and OWL: Two Ways to Structure Data

- Improve Data Quality:
  - Data Modeling and OWL: Two Ways to Structure Data, David Hay, Essential Strategies, Inc.:
    - Objectives of a Data Model:
      - Capture the semantics of an organization.
      - Communicate these to the business without requiring technical skills.
      - Provide an architecture to use as the basis for database design and system design.
        - » Now: *Provides the basis for designing Service Oriented Architectures.*

4.1 Data Modeling and OWL: Two Ways to Structure Data

- Improve Data Quality:
  - Data Modeling and OWL: Two Ways to Structure Data, David Hay, Essential Strategies, Inc. (continued):
    - Synopsis:
      - Both data modeling and ontology languages represent the *structure* of business data (ontologies).
      - Data modeling represent data being *collected*, and filters according to the rules.
      - Ontology languages represent data being *used*, with ability to have computer make inferences.
    - Comment from Lucian Russell (SICoP White Paper 3):
      - So ontology can improve data quality in legacy systems! David Hay agreed.

4.2 Using Ontology-based XML Schemas for Interoperability

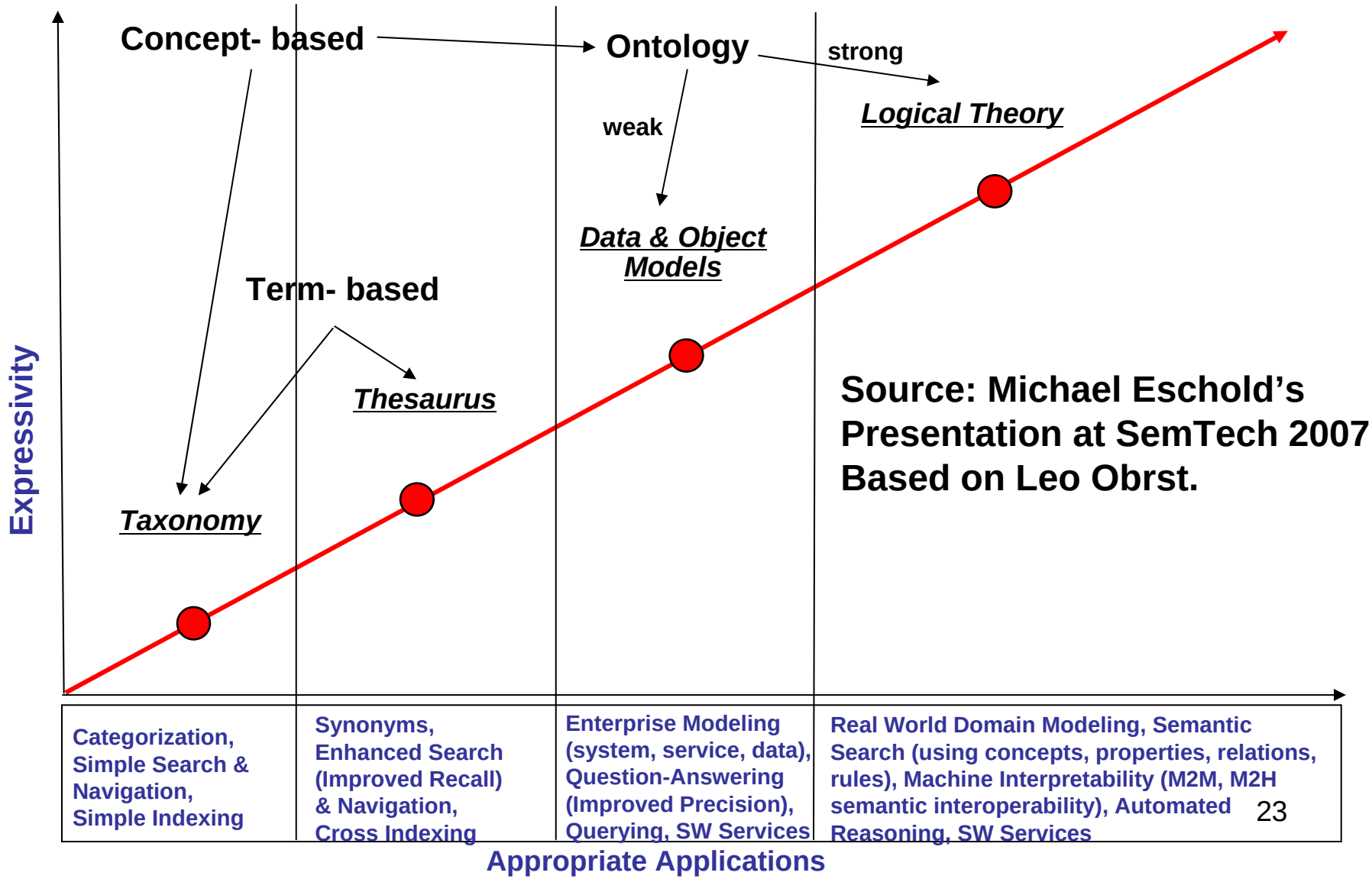
- We are moving logic from software to ontologies and OWL constructs allow us to say things that XML Schema doesn't allow very flexibly.
- Question: What's wrong with XML Schemas for interoperability and aggregation (see his slide 18).
- Answer: They lack model-based semantics which can be added as microformats (e.g. HTML + RDFA = Mashup). Apply the same idea to XML – annotate to add class information and do ontology-driven XML-to-RDF conversion (see his slide 19).

http://www.semantic-conference.com/2007/handouts/2-UpBW/Hodgson_Ralph_2UpBW.pdf

4.3 Spectrum of Reasoning and Applications

- Leo Obrst (as part of Michael Eschold's presentation)
  - When is a Taxonomy enough?
    - In general, you are using weak term relations because the nodes are not really meant to be concepts, but only words or phrases that will be significant to the user or you as a classification devise.
    - Taxonomy not enough if you need to either:
      - Using narrower than relation: Define term synonyms and cross-references to other associated terms, or;
      - Using subclass relation: Define properties, attributes and values, relations, constraints, rules, on concepts.
  - When is a Thesaurus enough?
    - You need more than a thesaurus if you need to define properties, attributes and values, relations, constraints, rules, on concepts.
      - You need either a conceptual model (weak ontology) or a logical theory (strong ontology).
  - Appropriate Applications (see next slide).

4.3 Spectrum of Reasoning and Applications



4.3 Spectrum of Reasoning and Applications

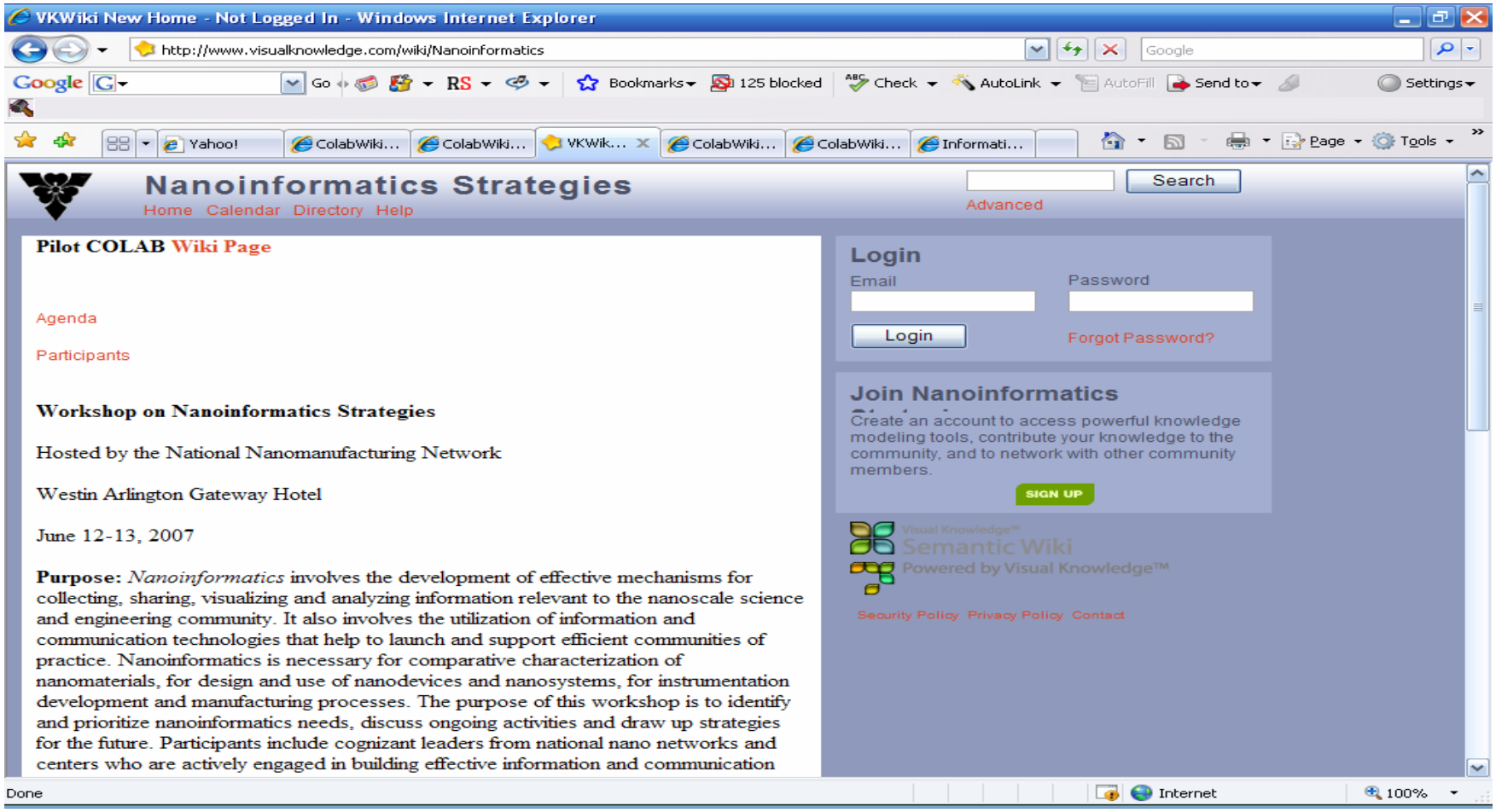
- Taxonomy:
  - Categorization, Simple Search & Navigation, Simple Indexing.
- Thesaurus:
  - Synonyms, Enhanced Search (Improved Recall) & Navigation, Cross Indexing.
- Data and Object Models:
  - Enterprise Modeling (system, service, data), Question-Answering (Improved Precision), Querying, SW Services.
- Logical Theory:
  - Real World Domain Modeling, Semantic Search (using concepts, properties, relations, rules), Machine Interpretability (M2M, M2H semantic interoperability), Automated Reasoning, SW Services.

Source: Michael Eschold's Presentation at SemTech 2007 Based on Leo Obrst.
http://colab.cim3.net/file/work/SICoP/2007-05-22/SICoPSTC05222007.ppt

4.4 Semantic Wikis

- Building Semantic Applications in a Semantic Wiki, Mills Davis, Project10X, and Conor Shankey, Visual Knowledge.
- Semantic Wiki, Michael Lang, Revelytix.
  - http://www.semantic-conference.com/2007/handouts/2-UpBW/Lang_Michael_2UpBW.pdf
- Policy Wiki for Compliance and Risk, Edgar Rodriguez, Cogo, Inc., and Conor Shankey, Visual Knowledge.
- Five High-Yield Collaborative Applications for Semantic Wikis, Conor Shankey, Visual Knowledge.
- Automatic Generation of Natural Language Reports from Semantic Research Results, Chuck Rehberg, Semantic Insights.
  - http://www.semantic-conference.com/2007/handouts/2-UpBW/Rehberg_Chuck_2UpBW.pdf

4.4 Semantic Wikis



http://www.visualknowledge.com/wiki/Nanoinformatics

4.4 Semantic Wikis

- What is a semantic wiki?:
  - Semantic - From the Greek words Greek sEmantikos significant, from sEmainein to signify, mean - of or having Meaning.
  - WIKI- A collaborative community web-based environment that enables prosumers to generate, present, and review content in a peer-reviewed environment.
- A WIKI empowered with an Agent-based ontology authoring, management and reviewing tools. A Semantic WIKI allows users to input data into the system in the same fashion as earlier WIKI and collaborative tools have, however, the Semantic Wiki includes tools for creating a model of that data such that the data entered becomes a network of related concepts, tied into an underlying model of the knowledge domain - in essence a Semantic Wiki is a Wiki that understands its content.

4.4 Semantic Wikis

- Leveraging the powerful ontology building tools of Visual Knowledge and the OWL/RDF standard representation, the VK Semantic Wiki empowers users to work on three discrete levels. In a VK Semantic Wiki businesses or communities can:
- Allow Subject Matter Experts [SME] to dump knowledge, facts, documents and other unorganized material into an easy to use online interface.
- Allows Content integrators to quickly categorize and instantiate the data entered by the SMEs into the Ontology of the Domain.
- Allows Ontologists (Knowledge Modelers) to create deep OWL ontologies of their corporation utilizing cutting edge web-based visualization tools. Similarly, the Ontologists can also leverage the deeper capacities of Visual Knowledge to build domain specific application functionality.

5. DRM 3.0 and Web 3.0, June 18-19, 2007

- SICoP White Paper 3:
  - CIOC Best Practices Committee, June 18, 2007:
    - http://colab.cim3.net/cgi-bin/wiki.pl?BestPracticesCommittee_2007_06_18#nid3KD5
  - W3C / WSRI Workshop at the National Academy of Sciences, June 18-19, 2007:
    - http://www.w3.org/2007/eGov/eGov-policy-cfp.html
- Methodology:
  - Broader Context
  - Semantic Relationships
  - Modules
- Example: Nanoinformatics
  - Trusted Reference Knowledge in a Semantic Wiki from a Two-Day Workshop at NSF, June 12-13, 2007:
    - Semantic Wiki Experts
    - Subject Matter Experts
    - Compare the Results of the Two Above in About Two Months
  - See http://colab.cim3.net/cgi-bin/wiki.pl?NanoinformaticsStrategiesWorkshop_2007_06_1213

5. DRM 3.0 and Web 3.0, June 18-19, 2007

Methodology: Broader Context

- Concept: Environment
  - measured by
- Concept: Sensors
  - that generate
- Concept: Data
  - that are transferred by
- Concept: Networks
  - that contain
- Concept: Nodes
  - that provide
- Concept: Services
  - that support
- Concept: Decisions

5. DRM 3.0 and Web 3.0, June 18-19, 2007

Methodology: Semantic Relationships

#	Semantic Relation	Abbr
1	POSSESSION	POS
2	KINSHIP	KIN
3	PROPERTY-ATTRIBUTE HOLDER	PAH
4	AGENT	AGT
5	TEMPORAL	TMP
6	DEPICTION	DPC
7	PART-WHOLE	PW
8	HYPONYMY	ISA
9	ENTAIL	ENT
10	CAUSE	CAU
11	MAKE-PRODUCE	MAK
12	INSTRUMENT	INS
13	LOCATION-SPACE	LOC
14	PURPOSE	PRP
15	SOURCE-FROM	SRC
16	TOPIC	TPC
17	MANNER	MNR
18	MEANS	MNS
19	ACCOMPANIMENT-COMPANION	ACC
20	EXPERIENCER	EXP

#	Semantic Relation	Abbr
21	RECIPIENT	REC
22	FREQUENCY	FRQ
23	INFLUENCE	IFL
24	ASSOCIATED-WITH / OTHER	OTH
25	MEASURE	MEA
26	SYNONYMY-NAME	SYN
27	ANTONYMY	ANT
28	PROBABILITY-OF-EXISTENCE	PRB
29	POSSIBILITY	PSB
30	CERTAINTY	CRT
31	THEME-PATIENT	THM
32	RESULT	RSL
33	STIMULUS	STI
34	EXTENT	EXT
35	PREDICATE	PRD
36	*BELIEF*	*BLF*
37	*GOAL*	*GOL*
38	*MEANING*	*MNG*
39	*JUSTIFICATION*	*JST*
40	*EXPLANATION*	*EXN*

Source: LCC Product *Polaris* Semantic Relations

5. DRM 3.0 and Web 3.0, June 18-19, 2007

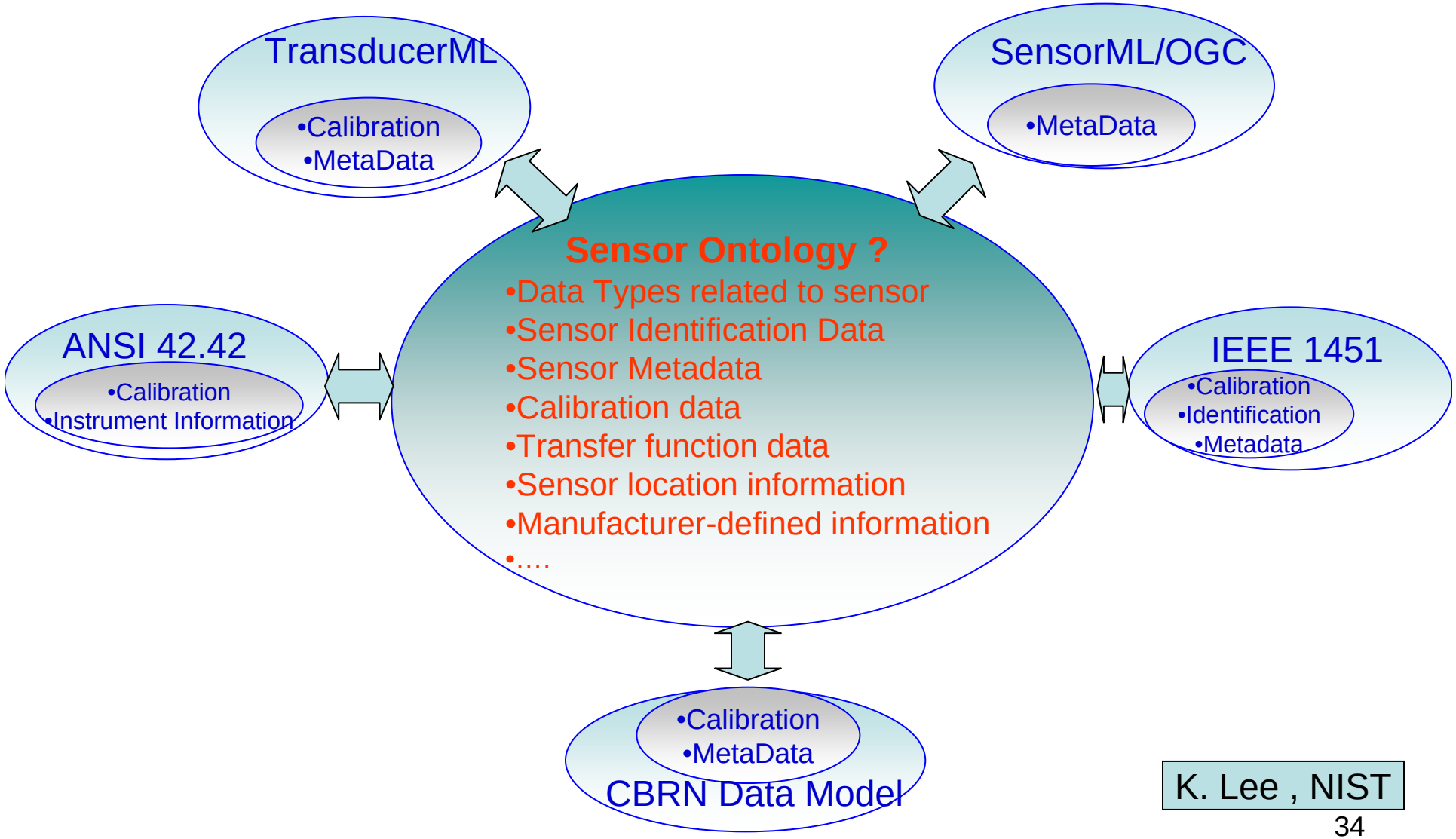
Methodology: Modules

- Process:
  - Supports the way people work (word processing)
  - Scalable (semantics by more than just ontologists)
  - Supports Semantic Web standards (distributed, but connectable applications)
- New Semantic Wiki Drawing Tools for Modeling:
  - CBRN / MIP Data Models (WordNet Standardization)
  - Standards (Concept Extraction)

6. Modular Approach to SSHWG Ontology, June 26, 2007

- 6.1 Sensor Standard Harmonization Using Ontology, Kang Lee, September 20, 2006
- 6.2 Apply the Spectrum of Reasoning and Applications, May 22, 2007
- 6.3 Revisit the Key Questions, Brief Answers, and Brief Story, February 23 and 28, 2007
- 6.4 Progress on Modules and Their Interoperability, June 26, 2007
- 6.5. Selected Slides, February 28, 2007

6.1 Sensor Standard Harmonization Using Ontology?



K. Lee , NIST

6.1 Sensor Standard Harmonization Using Ontology?

- Sensor Standard Harmonization, Kang Lee, August 29, 2006:
  - Solution of Sensor Standard Harmonization-Slides 11 & 30:
    - The sensor standard harmonization is to **extract the common terminologies, properties used by many of the sensor standards, and create a common sensor data model** which could be a new standard to be developed or an existing sensor standard to be revised.
    - A common set of sensor terminology and sensor classification.
    - Common Properties or Characteristics of Sensors.
    - Extract common properties of sensors from the existed sensor standards.
    - Add additional information or specified information to sensor common data model.
    - Map and translate common sensor model to each of existed sensor standard.

6.2 Apply the Spectrum of Reasoning and Applications

- Taxonomy:
  - Categorization, Simple Search & Navigation, Simple Indexing.
- Thesaurus:
  - Synonyms, Enhanced Search (Improved Recall) & Navigation, Cross Indexing.
- Data and Object Models:
  - Enterprise Modeling (system, service, data), Question-Answering (Improved Precision), Querying, SW Services.
- Logical Theory:
  - Real World Domain Modeling, Semantic Search (using concepts, properties, relations, rules), Machine Interpretability (M2M, M2H semantic interoperability), Automated Reasoning, SW Services.

  Recall Slides 22-24.

6.3 Revisit the Key Questions*

- 1. How to achieve the harmonization of sensor standards, primarily among the IEEE 1451, ANSI N42.42, SensorML, TransducerML, CBRN Data Model?
  - These standards need to be mapped to each other, in this case, harmonized, and the CAP, EDXL-DE etc., are standards that work with the data from these.
- 2. What information and technical help you need from each of the standards groups listed in 1.
- 3. Can you do this?

* Kang Lee, February 23, 2007.

6.3 Revisit the Brief Answers

- 1. I have IEEE 1451, ANSI N42.42, and the CBRN Data Model in the SSHWG Knowledgebase and need URLs for SensorML and TransducerML to add them to the SSHWG Knowledgebase. I have CAP and EDXL-DE in the SSHWG Knowledgebase, What is the etc. that I need to add?
- 2. I need a commitment from the technical representatives for each of these standards in 1 to work in the Semantic Wiki to help with the harmonization and even more fundamentally, define collectively what harmonization means, e.g. that we have the universal core of elements across all the standards, that we have a new standard with the mapped elements, etc.?
- 3. Yes, see recent SICoP Special Conferences at http://colab.cim3.net/cgi-bin/wiki.pl?SICoPSpecialConference2_2007_04_25

6.3 Revisit Brief Story Number 1

- Quote:
  - “ES3N: A Semantic Approach to Data Management in Sensor Networks”, describes an application of ontology technology within an architecture for processing sensors that monitor conditions in grain and storage silos. The authors show that historical and streaming sensor measurements can be combined to support expressive SPARQL queries over data modelled in OWL and stored as RDF files.”
    - Proceedings of the Semantic Sensor Network Workshop, November 6, 2006, Website: http://www.ict.csiro.au/ssn06/
- My Comment: This appears to be the state-of-the-art!

6.4 Progress on Modules and Their Interoperability

6.5 Current SSHWG Knowledgebase

- Have: IEEE 1451, ANSI N42.42, and the CBRN Data Model, and CAP and EDXL-DE.
  - Note: Just added IEEE 1451 (December 2006) 225 pages!
- Need: SensorML and TransducerML
  - Note: Others besides CAP and EDXL-DE?
- A Knowledgebase supports four functionalities (see next slide) and is what the SICoP Semantic Wikis produce in support of the CIO Council's Strategic Plan (FY 2007-2009) Data Reference Model 2.0-3.0 (see sections 2 and 3).

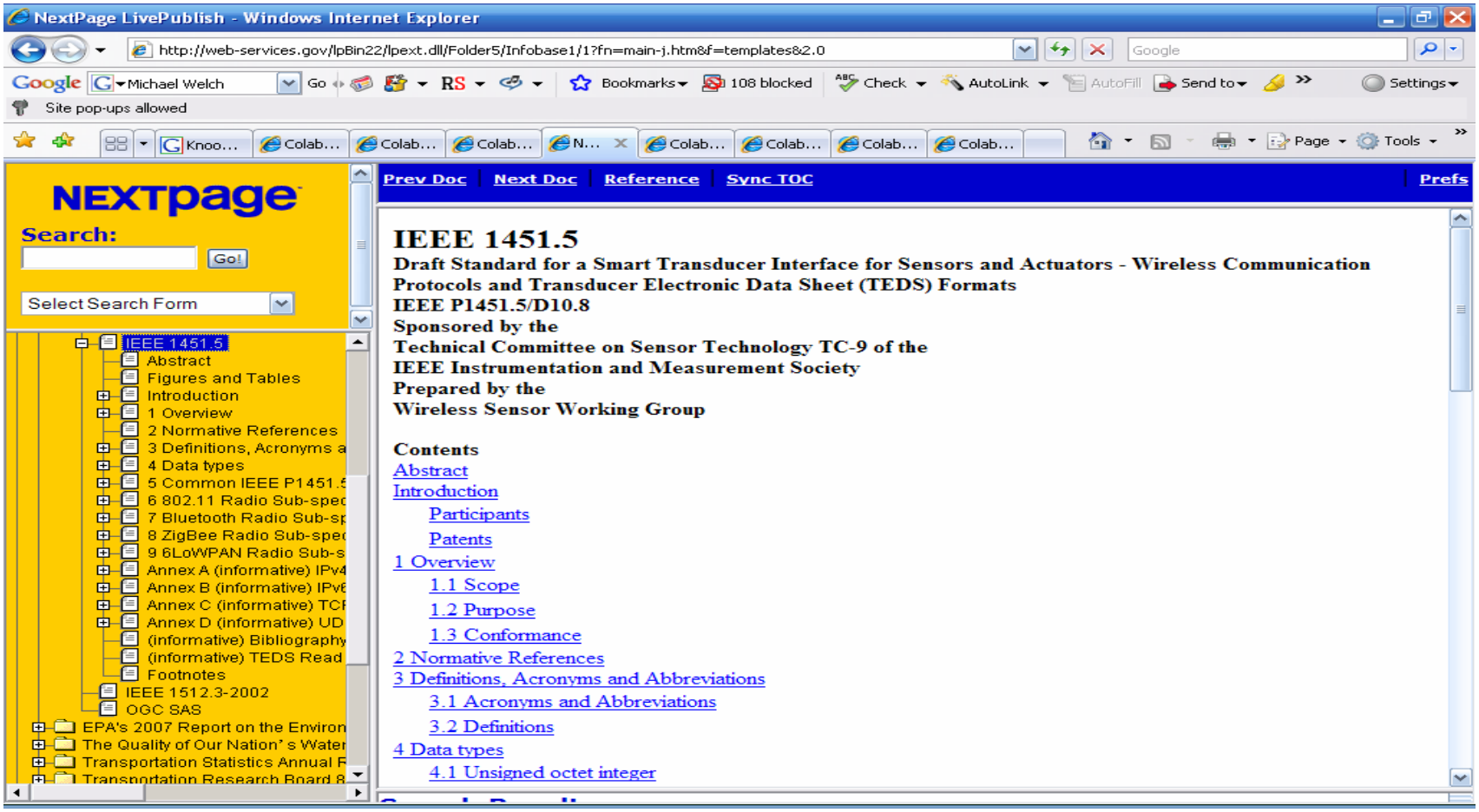
6.5 Current SSHWG Knowledgebase

- Metadata:
  - Full text of standards, meeting notes, etc.
- Harmonization
  - Different ways in which the same words are used.
- Enhanced Search:
  - Across all standards and showing context (e.g. words around the term or concepts)
- Mashups:
  - A website or application that combines content from more than one source into an integrated experience (repurposing).

6.5 Current SSHWG Knowledgebase

http://web-services.gov

6.5 Current SSHWG Knowledgebase

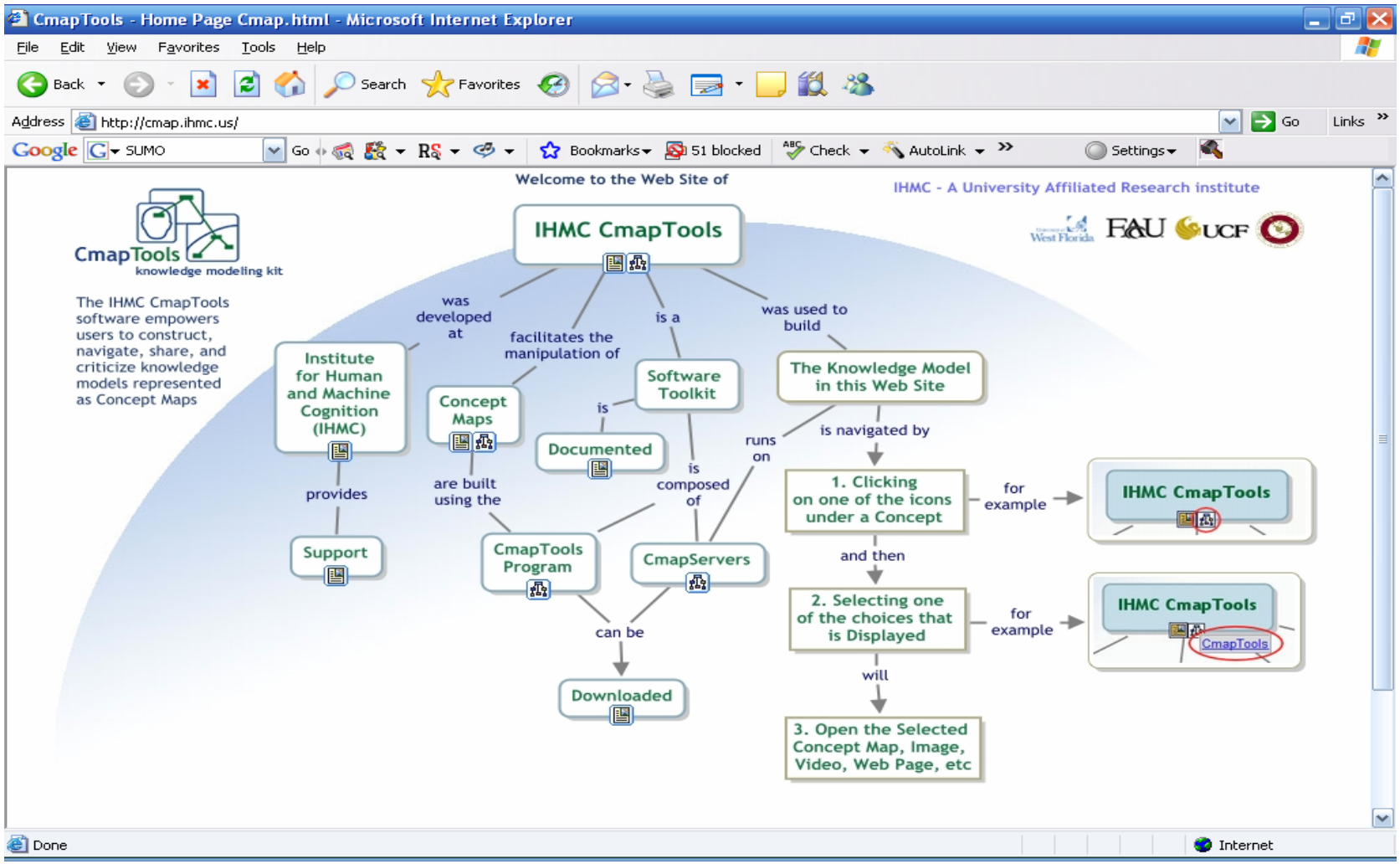


http://web-services.gov

6.5 Current SSHWG Knowledgebase

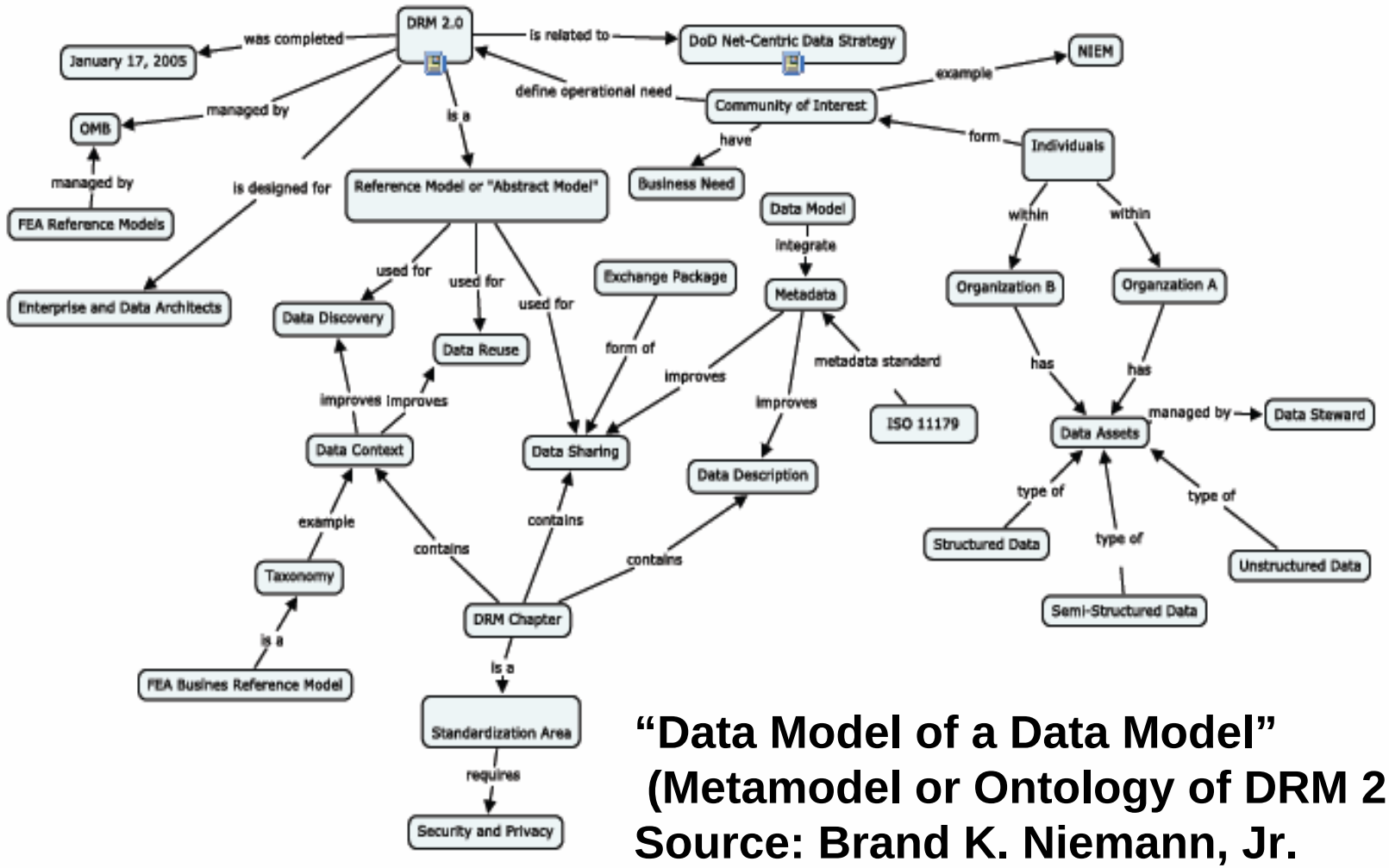
- Harmonization Approaches:
  - Subject Index
  - Data Model (e.g. CBRN)
  - Basic Concepts from Upper Ontologies (e.g., time)
  - Commonality / Variability (i.e., what's in common and what's not)
  - Model (or Ontology) In Mind (i.e., Kang Lee)
  - Concept Map (e.g. Cmaps)

6.5 Current SSHWG Knowledgebase



http://cmap.ihmc.us/

6.5 Current SSHWG Knowledgebase



"Data Model of a Data Model"
(Metamodel or Ontology of DRM 2.0)
Source: Brand K. Niemann, Jr.

3.6 Concept Map

6.5 Current SSHWG Knowledgebase

- Use Cmaps:
  - http://cmap.ihmc.us/
- Output in Multiple File Formats:
  - PDF Version for Use in Document
  - SVG Version for Use on the Web
  - XML Version for Structure
  - OWL Version for Semantic Relationships
  - Simple Text Version
- Data Model for DRM 2.0:
  - See http://colab.cim3.net/cgi-bin/wiki.pl?EPADataArchitectureforDRM2#nid3BEP

6.5 Current SSHWG Knowledgebase

- So the result can be:
  - An sensor ontology built from the concepts in slide 12 which references the standards;
  - An interlinked interface like slide 14; and/or
  - A formal ontology information system using a tool like Cmaps (slide 44).
- Question: Is this what we are expecting and can use? (see next slides)

6.5 Key Questions

- What should be the next standard (s) to add to the knowledgebase?
  - SensorML and TransducerML
  - Others like CAP and EDXL-DE?
- Who would like to volunteer to participate in a virtual harmonization meeting?
  - WebEx of Semantic Wiki like for NCOIC, February 6th Conference, etc.
- Define collectively what harmonization means, e.g. that we have the universal core of elements across all the standards, that we have a new standard with the mapped elements, etc.?

6.5 Some Next Steps

- Select the next standard (s) to include in the knowledgebase.
- Schedule a virtual harmonization meeting.
- Report at the March 29-30, 2007, NCOIC Meeting Session on Net-Centric Operations 2.0 (sensors, mobile platforms, devices)
  - http://colab.cim3.net/cgi-bin/wiki.pl?SOACoPDemo3

6.5 Some Next Steps

- Continue work on the multiple harmonization approaches.
- Build the Concept Map.
- Implement Five Steps for SSHWG CoP:
  - CoP Mission Statement
  - CoP Membership List
  - CoP Strategy
  - Training Conference Call (with items 1-3 entered into the Semantic Wiki space)
  - Commitments to collaboratively publish and edit trusted reference knowledge sources in the Semantic Wiki space.

6.5 Some Next Steps

Need help with populating this matrix

	Std-A	Std-B	Std-C
Sensor-1	1		
Sensor-2		2	
Sensor-3			

3

See next slide for explanation

6.5 Some Next Steps

- Semantic Wiki Pilot Framework:
  - 1 – Demonstrate compliance of Sensor-1 with Standard-A
  - 2 – Demonstrate design of new Sensor-2 that complies with a harmonized standard (e.g. Standard-A, Standard-B, and Standard-C).
  - 3 – Demonstrate that Sensors-1, 2 & 3 are interoperable with one another in a real world application.